REQUIREMENT ANALYTICAL AND CHECK THE PRODUCT REQUIREMENT USING QUALITY FUNCTION DEPLOYMENT

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ABSTRACT

Once the software project is decided to develop for any organization or for a particular purpose the requirement validation is playing a vital role. It helps to identify that at what level a developed project is The Quality Function Deployment tool is the powerful of the "REQUIREMENT VALIDATION" tool in the software engineering. The Quality Function Deployment tool is the powerful of the "REQUIREMENT VALIDATION" tool in the software engineering. The QFD tool is verify the all requirements of the software development process. This paper helps to measure and validate the user requirement and providing the good and best project or products to the customer.

KEYWORDS: Requirement validation, Quality function deployment.

1. INTRODUCTION

Software project is one of the useful products of people. It product uses of some problem detected to the people. It product on the business. Maximum uses the software project in business sector on the world of market. That is also called as the software project. The software project management focuses on the software engineering lifecycle of the importance. People, Product, Process, Project and maintain above the all things of software engineering. **Requirement Validation:** Determining the whether the requirements defined the complete as well as verifiable and important assurance activity particularly in the context of large transformations or Greenfield projects [3, 4]. Our Requirement validation services as the software engineering. Completeness and cohesiveness of functional coverage ensuring that requirements are fully developed and all parts of requirements are captured the together. Requirement validation is the lifecycle of the project. Validation of the main concept SRS that produce valuable project. That project has COMPLETE and CONSISTENT and ready for the formal validation process. Software Requirement Specification (SRS) provides is COMPLET, CONSISTENT, MODIFIABLE and TRACEABLE also providing the statement COMPLETE, CORRECT, FEASIBLE, NECESSARY, PRIORITIZED, UNAMBIGUOUS and VERIFIABLE. The validation is not one of the projects.

Carrying out the: Problem Analysis, Meeting, Discussing the resolving issues and collaboration that will result consensus that the requirement baseline being set. Software Measurement can be categorized in two types. **DIRECT MESUREMENT:** Project measures of the software process. Example cost and effort applied and product time for example lines of code (LOC) produced, execution speed, and defeats reported over same set period of time. **INDIRECT MEASUREMENT** Indirect measures of the product that include functionality,quality,complexity,efficiency,reliability,maintainability software process individual process are then combined to develop team process[2].

1.1 Need of Quality function Deployment

In a new method or that product is "HOW IT IS CORECT" analyses the particular product. Example we are identify that software product or project. One product is ready in our company. That company introduce that the particular product in the market. Suddenly the company was checking the product. In this process also occurs the Quality Function Deployment (QFD) tool on the software engineering [5]. That is also called as the Software Requirement Specification (SRS) using the Quality Function Deployment of House of Quality (HOQ). Now the software engineering developed the one software project or products are valuables of the field. But some software project or products are not quality and correct. So we want QUALITY project or products in one requirement. The Quality Function Deployment tool is the powerful of the "REQUIREMENT VALIDATION" tool in the software engineering. The QFD tool is verify the all requirements of the software development process. Top to bottom every software lifecycle module is the verify the all terms of software requirement concept [2].

1.2 Way to improve the quality of the software

Software engineering is the flow of software development process. it can lifecycle of software engineering communication, planning, modeling, construction, deployment of all requirement use the step by step move to the final of the project or products. Every step requirement is the "test" of quality function deployment. This process without quality function deployment (QFD) in software engineering, without the validation we cannot get the good and quality pro-

ject and product. Simply the main reason for "customer satisfaction". One company provides the one of the software project and products need the particular requirement. But the companies requirements with products are according to the "customer requierments".so choose the best tool is quality function deployment of the software engineering. The quality function deployment tool is used the software requirement specification (SRS) validate by the QFD in the software engineering. So providing the good and best project or products to the customer [3].

2. REQUIREMENT VALIDATION IN SOFTWARE ENGINEERING

Software engineering is the product and projects develop and maintain one firm. How to develop that product and projects using software engineering is design, development, implementation, and maintain of software of software in a systematic method. Main concept of Software Engineering evaluates using requirement specification. **CUSTOMER:** Customers are used the one of the project. But that product is "HOW IS IT CORRECT "example of we are identify and that uses that software product and project. **COMPANY:** One product is "READY" in our company. That product is producing the market .Suddenly that company checks the product.

2.1 Software Engineering Specification (SRS)

The requirement document is "READY" one of the objectives to be document. That document is check before to deliver. Whether software requirements specification contains error and no errors. No errors specify the user's requirement correctly. Also errors to be the product document the "SOFTWARE REQUIREMENT SPECIFICATION" (SRS) will detect the errors and correctly that product and development process delivered to users. Validation consequence of requirements engineering defined the important validation is: CONSISTENCY, OMMISIONS, AMBIGUITY ensures that SRS reflect that actual requirements are accurately and clearly.

SRS OBJECTIVES: To certify the SRS contains an acceptable description of the system to be implemented. To ensure that the actual requirements of the system are reflected in the SRS. To check the product and project requirement document is mentioned the some important things: **COMPLETENESS, OCCURACY, CONSISTANCY, REQUIREMENT, and CONFLICT.**

- Requirement validation: Have we got the requirements right?
- Requirement Analysis: Have we got the right requirements?

That is also called as the validation. SRS also provide Organizational Knowledge and Organizational Standards are specified to followed by the organization to which system to be developed. SRS also shown is requirement review providing the best components below explained. Unclear started requirements. [7] Conflict requirements are not detected during requirements analysis. Errors in the requirements, ELICITATION and analysis, Lack of conference to quality standards. To avoid the problems stated above a requirement review is conducted. Other requirement validation techniques providing the Software Requirement Specification (SRS). Test case Generation, Automated Consistency Analysis, Prototyping. The requirements change over time. The to help overcome these problems requirements gathering activity in an organized manner. The Information obtained to the from the customer during the Inception and Elicitation is expanded and refined the during Elaboration. The requirement engineering activity focuses on developing a refined technical model of software functions

and constraints.**3. QULITY FUNCTION DEPLOYMENT (QFD)**

3.1 Introduction

QFD (quality function deployment) is defined as a method for developing a design quality aiming at satisfying the consumer and then translating the consumer's demand into design targets and major quality assurance points to be used throughout the production phase. QFD is a way to assure the design quality while the product is still in the design stage (Akao, 1990). From this definition, QFD can be seen as a process where the consumer's voice is valued to carry through the whole process of production and services. QFD consists of two components which are deployed into the design process: quality and function. The "quality deployment" component brings the costumer's voice into the design process. The "function deployment" component links different organizational functions and units into to the design-to-manufacturing transition via the formation of design teams. (Lockamy&Khurana, 1995) [1].

3.2 History of QFD

QFD was invented in Japan by YojiAkao in 1966, but was first implemented in the Mitsubishi's Kobe shipyard in 1972, possibly out of the teaching of Deming. Then later it was adopted and developed by other Japanese companies, notably Toyota and its suppliers. In the USA the first serious exponents of QFD were the 'big three' automotive manufacturers in the 1980's, and a few leading companies in other sectors such as electronics. However, the uptake of QFD in the Western world appears to have been fairly slow. There is also some reluctance among users of QFD to publish and share information - much more so than with other quality-related methodologies. This may be because the data captured and the decisions made using QFD usually relate to future product plans, and are therefore sensitive, proprietary, and valuable to competitors. (Hutton, 1997). According to Lockamy and Khurana (1995), the idea of QFD is timing, performance evaluation, and resource commitment. And the four phases of QFD are: Product concept planning. It starts with customers and market research with leads to product plans, ideas, sketches, concept models, and marketing plans.Product development and specification. It would lead to the development to prototypes and tests. . Manufacturing processes and production tools. They are designed based on the product and component specifications. Production of product. It starts after the pilots have been resolved. After the products have been marketed, the customer's voice is taken again [1].

3.3 Benefits of QFD

Quality Development pointed out that the QFD has been evolved by product development people in response to the major problems in the traditional processes, which were:

Matrix diagrams, which are very useful to organize the data collected, help to facilitate the improvement process. They can be used to display information about the degree to which employee expectations are being met and the resources that exist to meet those expectations. The structure in which QFD uses to organize information is known as the House of Quality. In its broadest sense, the QFD House of Quality displays the relationship between dependent (WHATS) and independent (HOWS) variables (Woods, 1994).

4. HOUSE OF QUALITY (HOQ)

4.1 Voice of customer: Customers were asked to list attributes of car-door quality they felt were important. Customer attributes were grouped into two categories-"easy to open and close the door" and "isolation"-as shown in the above chart. The relative importance to the customer is listed as a percentage to the right of each attribute.

4.2 Competitive analysis: In terms of our customer, who well we are doing relative to our competitors? Customer perceptions of our car doors and those of our competitors for each attribute are listed on the right-hand side of the chart. For example, our car has an advantage over the other cars with respect to "no road noise," but nine of the cars have advantage regarding "stay open on a hill." The evaluations provide a place to start looking for ways to gain an advantage over the competition.

4.3 Voice of the engineer: The engineering characteristics that are likely to affect one or more of the customer attributes are listed along the top of the chart. The plus sign means that the engineers would like to increase the level that characteristic, and the minus sign mean that engineers would like to decrease the level. For example, our engineers would like to decrease the level. For example, our engineers would like to increase "road noise reduction" and decrease "energy to open the door."

4.4 Correlation: The nature of the relationship between customers' needs and engineering attributes needs to be specified. For example, reducing the amount of energy required to close the door will make closing the door easier, but increasing the door seal resistance will make closing the door more difficult. Comparing our door with those of the competition for each engineering characteristics allows the technical difficulty of working on each one to be assessed.

House of Quality is backbone of Quality Function Deployment. It is matrix model function of important tool of (QFD) Quality function Deployment. Translate the set of customer requirements also called as the "VOICE OF CUS-TOMER". House of Quality tool use of complete product and project following matrix. House of Quality main concept is "WHAT" and "HOW". "WHAT" is customer requirements also called as "voice of the customer?" "HOW" is company technical requirements "good or bad product" giving to the customer. Main concept of customer requirements is meaning the need of the customer.

1. Light Weight
2. Easy to use
3. Reliable
4. Easy to hold Steady
5. Color correction

Every requirement is company has particular customer waiting to the important ratings. Example 1, 2, 3, 4, 5, 6, 7, 8, 9(Highest Ratings) House Quality most important requirement is performance to customer [2].

Quality function deployment every features is check the technique requirement and customer requirements is deploy the matrix type. Also called as the relationship matrix.QFD also represents to the good or bad product and projects giving to the customers in manufacturing company. Customer and company relationship evaluating using the QFD. Customer Expectation the only good product. But the company is also introducing the good or bad product in the market. Then raising the feedback of advantage and disadvantage.QFD is only one of the checks customer need and company providing. Correct and start to end procedure of flow process introduce the good and quality product providing [1].

LIGHT WEIGHT	3
EASY TO USE	4
RELIABLE	5
EASY TO HOLD	2
COLOR CORRECTION	1

HOUSE OF QUALITY
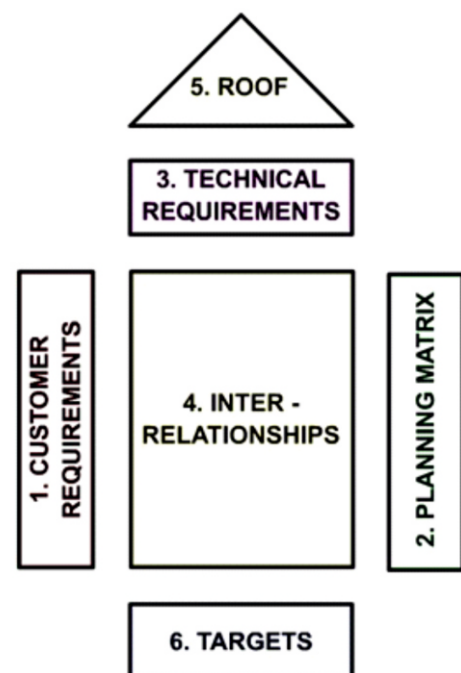
5. REQUIREMENT VALIDATION AND HOQ

5.1 Quality function deployment

Quality function deployment is product and process development system. In this type tool has some importance things providing the full complete product and projects. Quality function deployment is also called the Requirement value check process type into start stage to end stage in the one software business product firm in the software engineering. Defining the quality function deployment in is below

1. Planning
2. Requirement
3. Timing

In this type manages the quality function deployment then giving the GOOD PRODUCT to the customer. Correct and start to end process procedure of flow. Giving the good and QUALITY PRODUCT Check the product and process

using the quality function deployment. Otherwise called the Quality function deployment is VALIDATIONOF MANUFACTURING and SOFTWARE DEVELOPMENT. The Quality Function Deployment maintained the CUSTOMER And COMPANY. The CUSTOMER expects the good product but the COMPANY providing is GOOD OR BAD product according to the CUSTOMER. Customer defines the important requirement things:

1. Wants
2. Satisfaction
3. Easy to Handled
4. Reduce the cost
5. Extend the use of things

QFD is only one of the check the customer need and company providing the good product and projects [4].
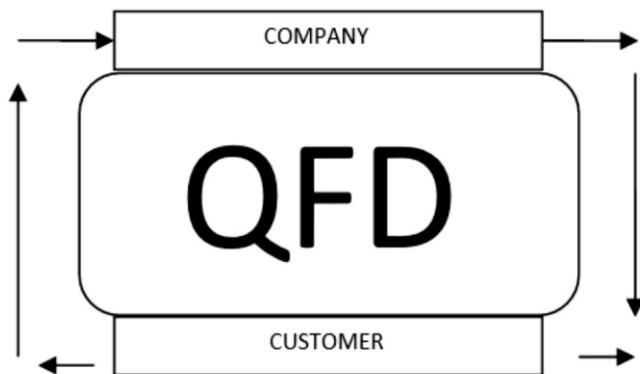
6. RESULT
6.1 Requirement Validation
Software engineering is the product and projects develop and maintain one firm. How to develop that product and projects using software engineering is DESIGN, DEVELOPMENT, IMPLEMENTATION, and maintain of software of software in a systematic method. Main concept of SOFTWARE ENGINEERING EVALUATE using requirement specification. Customers are used the one of the project. But that product is "HOW IS IT CORRECT "example of we are identify and that uses that software product and project company one product is "READY" in our company. That product is producing the market .Suddenly that company checks the product [5].

6.2 Software Engineering Specification (SRS)
The requirement document is "READY" one of the objectives to be document. That document is check before to deliver. Whether software requirements specification contains error and no errors. No errors specify the user's requirement correctly. Also errors to be the product document the "Software Requirement Specification" (SRS) will detect the errors and correctly that product and development process delivered to users. Validation consequence of requirements engineering defined the important validation is Consistency, Omissions', Ambiguity ensures that SRS reflect that actual requirements are accurately and clearly.

6.3 SRS objectives
1.   To certify the SRS contains an acceptable description of the system to be implemented.

2.   To ensure that the actual requirements of the system are reflected in the SRS.

3.   To check the product and project requirement document is mentioned the some important things.

•   **COMPLETENESS**
•   **OCCURACY**
•   **CONSISTANCY**
•   **REQUIREMENT**
•   **CONFLICT**

1.   Requirement validation: Have we got the requirements right?

2.   Requirement Analysis: Have we got the right requirements?

That is also called as the validation. SRS also provide Organizational Knowledge and Organizational Standards are specified to followed by the organization to which system to be developed. SRS also shown is requirement review providing the best components below explained.

Unclear started requirements. Conflict requirements are not detected during requirements analysis. Errors in the requirements ELICITATION and analysis. Lack of conference to quality standards. To avoid the problems stated above a requirement review is conducted. Other requirement validation techniques pro-

viding the Software Requirement Specification (SRS).

1.   Test case Generation.
2.   Automated Consistency Analysis.
3.   Prototyping.

6.4 QFD helps to make a quality project
Quality function deployment is product and process development system. In this type tool has some importance things providing the full complete product and projects. Quality function deployment is also called the Requirement value check process type into start stage to end stage in the one software business product firm in the software engineering. Defining the quality function deployment in is below.

1. Planning
2. Requirement
3. Timing

Quality function deployment then giving the good product to the customer. Correct and start to end process procedure of flow. Giving the good and quality product. Check the product and process using the quality function deployment. Otherwise called the quality function deployment is validation of manufacturing and software development. The quality function deployment maintained the customer and company. The customer expects the good product but the company providing is good or bad product according to the customer. Customer defines the important requirement things [3]:

1. Wants
2. Satisfaction
3. Easy to Handled
4. Reduce the cost
5. Extend the use of things

QFD is only one of the check the customer need and company providing the good product and projects.

6.5 How to calculate the HOQ for requirement validation

WHAT:
•   VOICE OF THE CUSTOMER"
Main concept of the coustomer requirements is "WHAT IS CUSTOMER REQUIREMENTS OR WANT" so it is provide the main concep into the QUALITY FUNCTION DEPLOYMENT described the customer requirements.Every requirement is the compare to the requirements commit to the particular product. Technical Requirements described the Holistic Requirements Model can be aligned to the assumed QFD requirement categories present the ideal situation as diagrammatical. Customers will include some Technical Requirements as part of their expressed requirements set. In Broad Market situations these will be very few as indicated by in Narrow Market situations the expressed Customer Requirements set will be dominated by Technical Requirements specifically the Non-Functional Implementation and Non-Functional Performance Requirements. The consequence of this is a large overlap between the QFD assumed requirement categories. Conflicting the requirements is not detected during requirements analysis errors in the requirements elicitation .We are building the product right no change the any element in verification term. Only just verify the good product. The customer demands (WHATs) with the corresponding orthogonal array. In this way the customer demands are treated as noise. The engineering characteristics (HOWs) are represented as an inner arrays. The customer then tests all the different combinations of the product and a customer agreement index is placed in the resultant matrix [1, 2].

HOW:
•   "HOW TO SATISFY CUSTOMER WANTS"
It is descripped the product terms of the company.How do satisfy customer requirements using technical requirements in the company.How to satisfy customer wants such the concept is also used the technical requirements. Translating the from customer to technical requirements "HOW TO SATISFY THE CUSTOMER NEEDS" using the technical requirements first of all findout the customer problem. Following the matrix oriented concept of the house of quality relationship matrix adobt to the refine the all customer expectatation of the product in this type use the phase of the defining. This section is main body of the HOUSE OF QUALITY MATRIX.It is this purpose translate the customer requirements effect by the customer requirements effect into the technical characteristics of the product. In this requirement projects we take the requirements concept of the one type of software project requirements." voice of the customer " can be provide some set of results in the customer requirements. The requirements are applied the House of Quality functions suggestion of the requirements checked the valuable products [1, 2].

6.6 Customer requirement
1. TALENT
2. EDUCATION
3. EXPERIENCE

6.7 Technical requirements

It is descripped the product terms of the company.How do satisfy customer requirements using technical requirements in the company.

1. PROJECT HNADLED
2. QUALIFICATION
3. YEAR OF EXPERIENCE

6.8 Relationship matrix

In this concet define the 3x3 requirement matrix formula used to the Quality Function Deployment in the HOUSE OF QUALITY. HOUSE OF QUALITY MATRIX.It is this purpose translate the customer requirements effect by the customer requirements effect into the technical characteristics of the product.In this structure of the matrix two types of components.This two type of the component has mixed and siginificant matrix.Then introduce the GOOD/BAD/NONE product and projects is introduce.
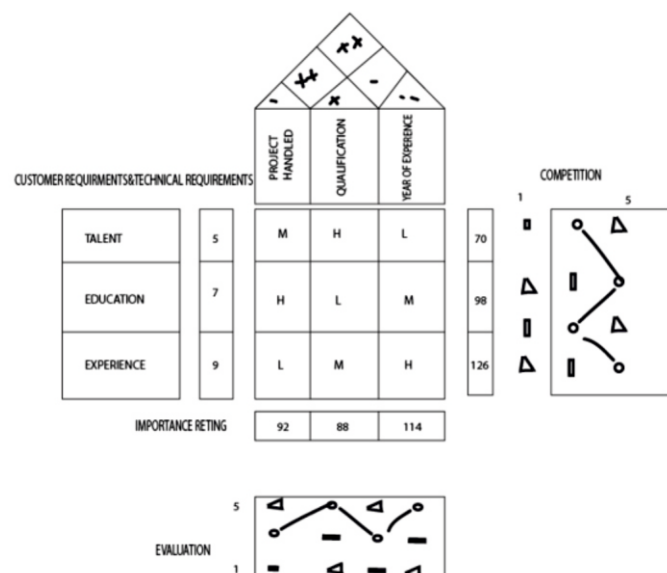
6.9 Corelationship matrix

This room in the matrix is where the term House of Quality comes from because it makes the matrix look like a house with a roof. The correlation matrix is probably the least used room in the House of Quality; however, this room is a big help to the design engineers in the next phase of a comprehensive QFD project. Team members must examine how each of the technical descriptors impacts each other. The team should document strong negative relationships between technical descriptors and work to eliminate physical contradictions.

- +9 Strong Positive (●)
- +3 Positive (○)
- -3 Negative (x) -9 Strong Negative (*)
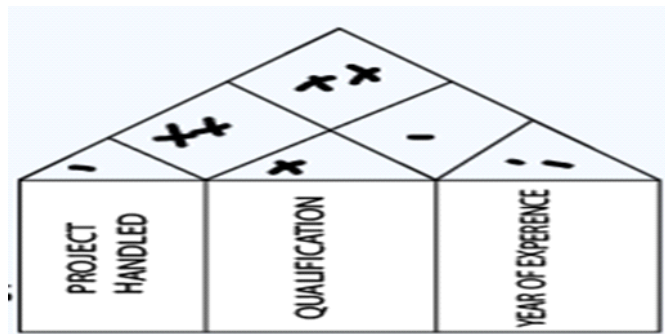
6.10 Find suggestion to make quality project

Simply the main reason for "customer satisfaction". One company provides the one of the software project and products need the particular requirement. But the companies requirements with products are according to the "customer requierments".so choose the best tool is quality function deployment of the software engineering. Software engineering is the flow of software development process. it can lifecycle of software engineering communication, planning, modeling, construction, deployment of all requirement use the step by step move to the final of the project or products. Every step requirement is the "test" of quality function deployment. in this process without quality function deployment (QFD) in software engineering, without the validation we cannot get the good and quality project and product [8].

7. CONCLUSION

Problem of scope, Problem of understating, Problem of volatility. Problem of scope defined to the opportunity, extent, sweep a rang of the action or observation. The boundary of the system is ill-defined or the customer/users specify unnecessary technical detail that may confuse rather than clarify overall system objectives. Problem of understanding-The customer/users not completely sure of the is needed. Poor understanding of the capabilities and limitations of their computing environment.Dont have full understating of the problem domain. Have trouble communicating needs to the system engineer; omit information that is believed to be "OBVIOUS". Specify the requirements that conflict with the needs of the other customer/users or specify the requirements that are ambiguous or untreatable. Problem of volatility: The requirements change over time. The to help overcome these problems requirements gathering activity in an organized manner. The Information obtained to the from the customer during the Inception and Elicitation is expanded and refined the during Elaboration. The requirement engineering activity focuses on developing a refined technical model of software functions and constraints.

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